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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/477,725	01/05/2000	HIROKI MAEDA	DAIN-540	9638

7590

05/16/2003

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EXAMINER

VO, HAI

ART UNIT

PAPER NUMBER

1771

DATE MAILED: 05/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/477,725

Applicant(s)

MAEDA ET AL.

Examiner

Hai Vo

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-25,30-33 and 37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-25,30-33 and 37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

1. Claims 25-27, 29, 34-36 and 38 have been cancelled in the amendment received on 03/14/2003.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 20-25, 30-33 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida et al (US 5,861,108) in view of Demus et al, the article "Relations of Isomorphism Between Liquid Crystalline Phases. 21. Synthesis and Liquid Cystalline Properties of 4,4'-disubstituted Biphenyls", Journal de Physique, Colloque (1975), (1) p349-354. Ishida discloses a liquid crystal element comprising a pair of glass substrates **2**, a pair of transparent electrodes **3**, a liquid crystalline charge transport material **1** filled into a gap between the electrodes (figure 1, column 120, line 47). Ishida is silent as to a specific liquid crystal recited in the claims, Demus teaches a liquid crystal material comprising 4-hexyloxy-4-butanoylbiphenyl. It would have been obvious to one having ordinary skill in the art at the time the invention was made to fill 4-hexyloxy-4-butanoylbiphenyl as the liquid crystal compound into the gap of the electrodes motivated by the desire to transport the electrons for utilization of light emission at the electrode interface.

Since Ishida as modified by Demus is using the same liquid crystal compound to form a liquid crystal element and the liquid crystal element of Ishida as modified by Demus meets all the limitations of structure and chemistry as set forth in the claims, it is the examiner's position that the phase transfer properties of the liquid crystal compound and the relation of the thickness of the gap between the electrodes and the domain size of the liquid crystal compound would be inherently present. With regard to claims 21, 22, 24 and 30, it is a product-by-process claim. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or an obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the applicant to show unobvious differences between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289,291 (Fed. Cir. 1983). It is noted that if the applicant intends to rely on Examples in the specification or in a submitted Declaration to show non-obviousness, the applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are commensurate in scope with Ishida/Demus.

Response to Arguments

4. The art rejections in Paper no. 14 have been overcome by the present amendment and arguments.
5. Applicant's arguments with respect to claims 20-24, 28, 30-33 and 37 have been considered but are moot in view of the new ground(s) of rejection.
6. The examiner could not locate a registry number for 2-(4'-octylphenyl)-6-nonyloxynaphthalene.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Abstract of the article "Anomalous High Carrier Mobility in Smectic E Phase of a 2-phenylnaphthalene derivative", Applied Physics Letters, December 21, 1998, 73 (25) p 3733-3735.

Abstract of the article "Fast Ambipolar Carrier Transport in Smectic Phases of Phenylnaphthalene Liquid Crystal", Applied Physics Letters, August 4, 1997, 71 (5) p 602-604.

EP 0 763 532 related to a process for producing a phenylbenzothiazole such as 2-(4'-heptyloxyphenyl)-6-dodecylthiobenzothiazole.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Vo whose telephone number is (703) 605-4426. The examiner can normally be reached on Tue-Fri, 8:30-6:00 and on alternating Mondays.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (703) 308-2414. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

HV
May 11, 2003


TERREL MORRIS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700